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The Impact of Adventure-Based Interventions for Adults with Mental Illness and Its Implications for OT Practice

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The Impact of Adventure-Based Interventions for Adults with Mental Illness and Its Implications for OT Practice

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CLINICAL SCENARIO:

While working with clients with schizophrenia in a community-based mental health program during my fieldwork, I noticed the participants' enjoyment and increased engagement of our outdoor activities. Reflecting on my own personal feelings of well-being when outside, I wondered about the effects outdoor interventions have on person with mental illness. I also work for an inclusive adventure-based recreation program, serving people of all abilities. Having seen both the challenge and growth of participants as they stepped out of their comfort zones during our adventure trips, I began to wonder about merging these two experiences: what effect would being challenged in the outdoors have on adults with mental illness? There are lots of adventure-based programs for at-risk youth but I was unaware of such programs targeted towards adults. I was also curious about the generalizability of the experiences during these adventure-based programs into real-life situations and the possibility of making these experiences a practical clinical application for occupational therapy practice.

Experiential learning is a popular education style that believes learning by doing is essential for success. This matches the essential belief in occupational therapy that change and growth develop through engagement in occupation. Adventure-based interventions use this fundamental concept to create change within a person that may otherwise be difficult to obtain using traditional methods. Motivation, physical fitness, self-efficacy and a sense of mastery are key concepts that persons with mental illness struggle with that can affect every aspect of their lives and can be fostered in experiential learning environments. The traditional rehabilitation model for persons with mental illness lacks adventure-based interventions and may be missing an essential opportunity to helping those achieve and maintain recovery.

FOCUSSED CLINICAL QUESTION:

What is the influence of adventure-based interventions on engagement and effectiveness of treatment for adults with mental illness?

SUMMARY of Search, ‘Best’ Evidence’ appraised, and Key Findings:

The following 5 articles were chosen as “best” evidence for this critically appraised topic:

- The randomized control trial study by Eikenaes, Guide, & Hoffart (2006) used a 6-day wilderness therapy trip as treatment for persons with antisocial personality disorder. This study found significantly stronger improvements directly after treatment but minimally significant changes at one-year follow up. This article was included due to its use of a mid-range program duration.
- The case-control study by Voruganti, Whatham, et al. (2006) used a 1 day/week adventure-and recreation-based program over 8 months for person with schizophrenia. This study found significant increases in self-esteem, global functioning and cognitive abilities. This article was included due to its feasibility in the clinic setting and well-written evaluation.
- The randomized control trial study by Kelly, Coursey, & Robert (1997) used a 1 day/week adventure-based program for 9 weeks for persons with various mental illnesses. This study showed a significant positive change in self-esteem and depression. This article was included due to its feasibility in the clinic setting.
- The before and after study by Wilson, Jones, et al. (2011) used a clinically-feasible 3x/week ecotherapy program, with a focus on woodland arts and crafts. They found no impact on general or mental health but did show improvements in physical activity levels and decreased attrition rates. This article was included due to its use of the outdoors in intervention without being solely adventure based as a means to compare to other programs for effectiveness.
- The qualitative case-study approach research by Russell (2005) evaluated a year-long residential outdoor behavioural program at 2-year follow up, focusing on its perceptions by clients and the role of after-care. This study found that the majority of participants perceived the outdoor program as effective and have utilized aftercare services, believing this was essential to recovery. Although youth participants were used, this article was included due to its implications on success of adventure programming and lack of research available for adults.

CLINICAL BOTTOM LINE:

These articles considered the broad-scope implementation of adventure-based interventions ranging from year-long residential placements to one-day a week programs with varying activities. Although results in each study varied, there was a consistent positive impact in physical fitness, attendance and self-esteem found in each adventure-based intervention with special consideration to follow-up care being needed.

The “best” evidenced case-control study gave special attention to the feasibility in the clinical setting, specifically comparing standard clinic recreation to adventure-based treatment, taking into consideration implementation of such programs as a new standard intervention for persons with mental illness. This study was also well done and clearly written, making its implications more usable for the mental health community.

Limitation of this CAT: This critically appraised topic has been prepared by a master's of occupational therapy student, reviewed by peers and faculty as part of a university project.

SEARCH STRATEGY:

Terms used to guide Search Strategy:

- **P**atient/Client Group: *adults with mental illness*
- **I**ntervention (or Assessment): *adventure-based intervention*

For the purposes of this Critically Appraised Topic, the search term "outdoor interventions" was used to capture the various terms used for adventure-based modalities such as wilderness therapy, adventure therapy, etc.

- **C**omparison: *n/a*
- **O**utcome(s): *engagement and effectiveness of treatment*

Databases and sites searched	Search Terms	Limits used	Articles Found
PsyInfo	"outdoor" map to: <i>recreation, recreation areas,</i> <i>outdoor (keyword)</i> <and> "mental health"	<ul style="list-style-type: none"> Limit to 2006-current, English only 	Retrieved: 62 Relevant: 1 Wilson, et. al. (2011)
Cinahl	"outdoor" <and> "mental health"	<ul style="list-style-type: none"> Limit to 2005-2011 adults only 	Retrieved : 5 Relevant : none
Medline	"nature" <and> "mental illness"	<ul style="list-style-type: none"> Limit to 2005-2011 Adults only 	Retrieved: 20+ Relevant: 1 Annerstedt & Wahrborg (2011)
Reference Mining from: Annerstedt & Wahrborg (2011)	N/A	<ul style="list-style-type: none"> Adults only 	Retrieved: 5 Relevant: 3 Voruganti, et. al. (2006) Kelley, et. al. (1997) Eikenaes, et. al. (2006)
Springerlink	"outdoor" <and> "mental illness"	N/A	Retrieved: 6 Relevant: 1 Russell (2005)

INCLUSION and EXCLUSION CRITERIA

- Inclusion:
 - English language only
 - Studies with participants 18 years or older
 - Studies that used programs focused on adventure therapy, wilderness therapy or other similar outdoor interventions
- Exclusion:
 - Studies older than 1995
 - Studies that used horticultural therapy

RESULTS OF SEARCH

Table 1: Summary of Study Designs of Articles retrieved

Study Design/ Methodology of Articles Retrieved	Level	Number Located	Author (Year)
Before and After	3	1	Wilson, et. al. (2011)
Randomized Control Trial	1	2	Eikenaes, et. al. (2006) Kelley, et. al. (1997)
Case-Control	3	1	Voruganti, et. al. (2006)
Qualitative Case Study	n/a	1	Russell (2005)

BEST EVIDENCE

The following study/paper was identified as the 'best' evidence and selected for critical appraisal. Reasons for selecting this study were:

- This study included 3 sets of data collection, including a one-year follow-up showing significant continuation of positive effects.
- This study considered the feasibility of implementing an adventure program in the clinical setting.
- This study was done well and written effectively.
- This study matched my research question.

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal of:

Voruganti, L., Whatham, J., Bard, E., Parker, G., Babbey, C., Ryan, J., Suganya, L., MacCrimmon, D. (2006). Going beyond: an adventure- and recreation- based group intervention promotes well-being and weight loss in schizophrenia. *Canadian Journal of Psychiatry*, 51(9), 575-580.

Aim/Objective of the Study/Systematic Review:

To evaluate the effectiveness of an adventure and recreation based program for persons with schizophrenia in the rehabilitation group setting while determining its' feasibility for clinical implementation.

Study Design:

This was a case-controlled study looking at patients with schizophrenia in standard rehabilitation treatment compared to patients with schizophrenia involved in an adventure- and recreation- based group program. The study was a prospective, pre- and post- treatment design, looking at each group during treatment as well as at one-year follow-up, spanning 20 months in total. All participants were screened prior to program participation to ensure clinical stability prior to participation. After local research ethics board approval and patient consent was obtained, the researchers collected baseline data. After completion of the adventure- and recreation- based program (8 months), data was again collected and then again at one-year follow-up. Evaluators collecting the data were blinded to the participant treatment status.

Participants in the study could not be blinded to treatment methods due to their active participation in treatment. Experienced clinical staff (Registered Nurse, Occupational Therapist, Recreation Therapist, Social Worker) ran each of the adventure- and recreation- based treatments.

Setting:

Although not defined in the article, it appears the setting was an out-patient clinic.

Participants:

Participants were community dwelling adults diagnosed with schizophrenia or schizoaffective disorder. To be considered for the study, participants needed to be clinically stable for 6-months or longer, with no admissions or exacerbations of symptoms, as well as physically healthy. Recruitment strategies were not discussed in the article. A list of interested and screened participants was created. The treatment group comprised of the first 23 participants on the list; the control group were the remaining 31 interested persons on the list. The treatment group consisted primarily of men who were unemployed, single, and have received a primary education. The average age for the treatment group was 32.4 years with 12.2 years of illness. The control group was similar, having primarily men who were unemployed, single and have received a primary education. The average age for the control group was 40.83 years with 14.6 years of illness. All participants were available for each section of evaluations, including the one-year follow up evaluation. There were no drop outs in this study.

Intervention Investigated

Control:

The control group (n=31) received recreational activities through the clinic, per standard clinical care. These included: movies, monthly dances, and two seasonal events of a summer picnic and Christmas party. Standard recreational activities at the clinic do not include adventure-based options. The control group participated in the same evaluations and time-line as the experimental group.

Experimental:

The experimental group (n= 23) received adventure- and recreation- based activities, consisting of a summer and winter module. The total experimental participants were divided into two cohorts (12 and 11 in each) to enable safe participation. Each module consisted of 8 weekly sessions, each lasting 1 full, 8-hour day (with the exception of camping lasting 3 days) and incorporating activities appropriate for the season. Rock climbing, camping, canoeing, high and low ropes courses, a picnic and kayaking were included in the summer module offered during July and August. Skiing, skating, snowboarding, ice fishing, snow shoeing, bowling and indoor rock climbing were included in the winter module offered in January and February. The activities were chosen based on the experience of the researchers leading the activities and the likely expected benefits. Prior to each therapeutic session, the group met to collectively plan and prepare for the activity. The participants in the experimental group were encouraged to maintain weekly contact with the treatment team during the period between modules.

Outcome Measures

Outcome measures evaluated in this study included: symptom severity, global functioning, self-esteem, cognitive dysfunction (self-appraised), weight and psychosocial adjustment. Each instrument administered has been well-established in the mental health population as reliable.

The *Positive and Negative Symptom Scale* (PANSS) was used to measure severity of symptoms. This was an interview-administered assessment that contained 30 items to be rated. Scores can range from 30-210, with the higher the score indicating greater symptom severity. An increase in this score would indicate an increase in symptoms.

The *Global Assessment of Functioning* (GAF) was used to measure overall functioning. This was an interview administered assessment that contained a single-item scale. Scores can range from 0-90, with the higher the score indicating superior functioning. An increase in this score would represent better functioning.

The *Sickness Impact Profile* (SIP) was used to measure degree of disability. This participant-administered rating scale consists of 63 items with a score range of 0-63, with the higher the score indicating greater degree of disability.

The *Adult Self-Image Scale* (ASIS) is a participant-administered scale that measured self-esteem. This 18-item scale can have scores ranging from 0-36, with the higher the score indicating greater self-esteem.

The *Subject Scale to Investigate Cognition in Schizophrenia* (SSTICS) is a participant-administered rating scale that included 21 items with a possible score range of 0-24. The SSTICS measured self-appraised cognitive dysfunction, with the higher the score indicating greater self-perceived cognitive deficits.

Participant weight was taken quarterly during the length of the study.

Main Findings:

Table 2
Changes in outcome measures at the end of the intervention and after 12 months follow-up

Outcome Measures	Active intervention group (n=23)			Control subjects (n=31)			Analysis of variance
	Baseline	At the end of the intervention	12 months post intervention	Baseline	At the end of the intervention	12 months after the intervention	Statistical Significance
PANSS	71.34	65.47	67.13	66.58	65.34	64.03	$P < 0.26$
	53.26	59.38	58.27	54.19	54.37	55.25	$P < 0.05$

GAF							
SIP	32.13	20.52	22.95	34.12	35.6	34.16	$P<.01$
ASIS	14.08	22.9	19.34	15.77	16.71	15.5	$P<0.05$
SSTICS	37.3	30.63	29.3	36.8	37.2	37.48	$P<0.04$

Table adapted from:

Voruganti, L., Whatham, J., Bard, E., Parker, G., Babbey, C., Ryan, J., Suganya, L., MacCrimmon, D. (2006). Going beyond: an adventure- and recreation- based group intervention promotes well-being and weight loss in schizophrenia. *Canadian Journal of Psychiatry*, 51(9), 575-580.

Interpretation of Results

The results from this study indicate the participants that were involved in the “Going Beyond” adventure- and recreation-based program showed statistically significant improvement in self-esteem and global functioning as evidenced by increases in ASIS and GAF scores. Furthermore, these improvements over base-line data continued at 1-year follow up, despite a slight decrease from post-intervention scores. Marginal improvements were seen in the areas of cognitive functioning and degree of disability as evidenced by decreases in SSTICS and SIP scores. Contrary, the control group showed little improvements in all these areas at both post-treatment and 1-year follow up scores. A decrease in symptom severity was seen in the PANSS scores in both groups, although not statistically significant.

In addition, a significant weight loss average of 12 lbs. was seen in the treatment group participants over the course of a year. In contrast, the control group participants showed an average weight gain of 9 lbs. Furthermore, the authors of this study also noted the unexpected attendance rate of 97% for the experimental group as compared to 72% attendance rate for the control group.

Qualitative reports from treatment group participants showed trends of positive experiences. Satisfaction from participating in a group, feeling the thrill of adventure and challenge as well as a sense of accomplishment, and developing mutual, trusting relationships with peer participants and therapists were outcomes not captured on the standardized assessments. After the experience, participants indicated a change in life perspective and took initiative to set new goals for themselves after the program.

Original Authors' Conclusions

The authors of this study found that adventure- and recreation-based interventions were popular among this patient population and were effective in improving perceived cognitive abilities, self-esteem and psychosocial adjustment. This study shows that for patients with schizophrenia, adventure and recreation therapies improve self-esteem, motivation and create a sense of belonging. This sense of motivation in a population that can be challenging to engage can have great clinical impact. In addition, the tremendous weight loss seen in the experimental group, believed to be due to the sustained physical activity for over a year, can have a profound effect on all aspects of health issues often related to schizophrenia such as diabetes, side effects from medications and other metabolic disorders.

Critical Appraisal:

Validity

Extensive literature was reviewed that referenced both prior studies and theories related to the program design. The authors created well thought out connections between the purpose of the study, methodology and theory. The study design was appropriate, however, the authors acknowledged a randomized control trial design would greatly increase the study's validity.

Although well thought out, a few biases can be seen in this study. Sample bias may have been present as only those who signed up to participate were considered for the study. This may have resulted in a higher success rate due to greater motivation to participate fully. Recall or memory bias can also have influenced outcome measures due to self-report measurements at various points in treatment. The researchers attempted to account for this by having participants maintain a log between seasonal modules. Cointervention and contamination were not addressed in this study but through understanding the methodology, it does not appear to be a bias.

Assessment tools for each outcome measured are reliable and frequently used in the mental health field. Intervention timing was expressed clearly, however, intervention protocol is lacking. Beyond the types of activities implemented, there was no clear outline of how these adventure-based interventions were framed for the participants prior to, during or at debrief of activity to ensure maximum therapeutic value. This is a strong limitation to this study, hindering its ability to be replicated.

Summary/Conclusion:

Overall, this research provides strong support for adventure- and recreation-based interventions for adults with schizophrenia. Although the correlation between treatment and outcomes were not as strong as anticipated, the researchers recognized both the quantitative and qualitative findings to be significant for a population that has limited interventions being offered.

The "Going Beyond" program is a successful example of implementing an adventure and recreation-based intervention into the clinic setting having used clinic staff and clinic time structure to implement it. After participating in the adventure- and recreation-based program, participants had higher self-esteem, greater perception of cognitive abilities and a decreased sense of disability. This indicates a greater sense of self and empowerment overall. Based on attendance alone, a program like "Going Beyond" can be utilized to motivate clients to make change. Based on both the assessment data and qualitative reports, "Going Beyond's" use of challenge and experiential learning associated with the adventure-based activities appears to be an effective treatment for persons with schizophrenia.

The use of adventure- and recreation-based interventions for persons with mental illness is a viable option for medical professionals to consider when working with patients who are reluctant or unresponsive to standard treatment. Based both the

assessment data and qualitative reports, the use of challenge and experiential learning associated with adventure-based programs is effective. Implementation of such a program requires a team-approach in order to ensure appropriate staffing and dedication to participation. By incorporating alternative and experiential learning interventions, professionals gain opportunities to build greater rapport with clients and can overcome barriers seen in typical service delivery.

Table 3: Characteristics of included studies

	Wilson, et al. (2011)	Eikenaes, et al. (2006)	Kelley, et al. (1997)	Russell (2005)
Purpose / Methods	To investigate the effectiveness of a group based, outdoor intervention program. Program included woodland crafts, structured activities outdoors and conservation. 3 hours/week for 12 weeks.	To stimulate self-efficacy through integrated wilderness therapy in a group setting, improving mental illness symptoms. Adventure-based 6-day wilderness trip, integrated in an out-patient clinic setting.	To assess the effectiveness and clinical feasibility of a group, adventure-based treatment w/ task-performance training. Group processing and planning prior to each trip. Adventure-based activities 1/week (8-10 hours each) for 9 weeks.	The qualitative evaluation of participate well-being and transition 24-month post participation in an adventure-based treatment. Integrated clinical treatment strategies in a wilderness expedition approach (50 days).
Comparison Intervention	N/A	Standard in-patient rehabilitation programming (group sessions, art therapy, PT, OT and individual therapy) during same time frame	Standard rehabilitation treatment consisting of recreational activities such as movie nights, dances, picnics and holiday parties.	N/A
Participants	Community agency referred adult clients with various mental illnesses, stable at baseline data. Treatment group N=77	Hospital referred adult patients with antisocial personality disorder, stable at baseline and screened for exclusion criteria of co-morbidities. Treatment group N=16 Control group N=37	Clinic referred adult clients with schizophrenia, stable and comparable at baseline data. Treatment group N=23 Control group N=31	Adolescents participated in the program. Sample participants were taken from a pre-existing enrolment if both participant and their parent could be reached for interviews.
Outcomes Measured	<ul style="list-style-type: none"> General Health – <i>Short-Form Health Survey</i> Mental wellbeing – <i>Warwick-Edinburgh Mental Wellbeing Scale</i> Physical Activity- <i>Scottish Physical Activity Questionnaire</i> 	<ul style="list-style-type: none"> Socialization – <i>Phobic Avoidance Rating Scale, Inventory of Interpersonal Problems</i> Relapse of Symptoms – <i>Symptom Checklist, Global Symptoms Inventory</i> Self-efficacy – <i>Self-Efficacy Inventory</i> Reduced pathology – <i>Statistical Clinical Interview</i> 	<ul style="list-style-type: none"> Self-Efficacy & Self-Esteem – <i>Generalized Self-Efficacy Scale, Rosenberg Self-Esteem Inventory</i> Anxiety & Depression – <i>Beck Depression Inventory, State-Trait Anxiety Inventory</i> Trust vs. Paranoid Tendencies – <i>Trust & Cooperation Scale</i> <p>*list abbreviated</p>	<ul style="list-style-type: none"> Well-being Perceptions of treatment Role of after-care <p><i>Qualitative data was obtained through structured interviews of youths and parents.</i></p>
Assessment Timing	Pre- and post-intervention comparison	Pre- and post - intervention and at 1-year follow up	Pre-intervention, 1 st day of intervention, last day of intervention	24-months post intervention
Findings	No significant difference in mental wellbeing or on general health assessments. Significant increase in physical activity.	Increased socialization and self-efficacy found during treatment for experimental group over control and continued through 1-year follow up.	Significant increase in self-efficacy and self-esteem (compared to a decrease over time for control) and for depression and anxiety for treatment group. No significant changes in other measures.	80% of parents, 90% of youth believe the outdoor intervention was effective. 85% utilized aftercare and believed it was essential for recovery.

IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

The positive outcomes achieved in each of the studies considered for this critically appraised topic demonstrate the viability of using adventure-based interventions for persons with mental illness. The increase in physical activity seen in the before and after study by Wilson, et. al (2011) and the highlighted case-control study by Voruganti, et. al (2006) could greatly benefit the well documented issues of weight gain and metabolic disease that are co-morbid with many forms of mental illness. The increase in self-efficacy seen in the randomized control trials by Eikenaes, et al. (2006) and by Kelley, et. al. (1997) and in the highlighted case-control study by Voruganti, et. al. (2006) indicate the ability to change a person's self-perception which has been used in motivational interviewing as a means for initiating behavioral change. The strong belief in adventure-based interventions as being successful in the qualitative study by Russell (2005) show the impact such programs can have on clients and their families directly. However, due to the lack of consistent statistically significance and the lack of change seen in other performance measures such as symptom severity and degree of disability, each of the adventure-based interventions discussed require additional research and program development before being considered the primary treatment modality for persons with mental illness.

Clinical implementation of outdoor interventions such as the ones researched here should carefully consider program layout in regards to the current professional availability. Each study had consistent staff either leading or attending the programs which may not be replicable in certain settings. As seen in the qualitative case-study by Russell (2005), the role of after-care post participation in an adventure-based program is crucial for generalizability of progress seen. Consistency of care should be considered and familiar staff who will be coordinating after-care should be included in the adventure-based program intervention. A model for adventure-based programming for adults with mental illness should include a greater focus on modalities used for processing the intervention with the client, making connections to the client's current life struggles and for active transition and carry over into the clients preferred follow-up care method to continue success. Creation of a new model for adventure-based programming has implications on education, creating a more inclusive and all-encompassing use of modalities when treating mental illness. An occupational therapist's knowledge of task analysis, group development and leading, motivational interviewing and stages of change could be beneficial in creating this strengths-based, connected care through adventure-based programming. Occupational therapy's primary belief in client engagement and learning thru doing make it a key profession through which an adventure-based intervention can be used in all stages of treatment.

Future research is needed to address the limitations of the existing outdoor intervention studies. Small sample sizes and low level studies are common in this research area. Furthermore, future studies should include greater explanation of the therapeutic practices involved in organizing, planning, implementing, and debriefing outdoor intervention groups. It is these aspects of such programs that are key in creating the biggest impact and the ability to replicate such a program in practice. Use of metaphors, therapeutic use of self and elements of cognitive behavioural therapy that occur in outdoor interventions can be the cause of success or failure of a program's ability to reach a client. In addition, future research needs to include follow-up data to determine generalizability of the positive change achieved during

intervention. This will clarify the magnitude of positive effects outdoor interventions can have, can aid in educating other health professionals on its' use and will also enable clinicians to visualize outdoor interventions as a legitimate modality for behavioural change.

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